

Title (en)

NARINGENIN AEROSOL INHALATION SOLUTION PREPARATION AND PREPARATION METHOD THEREFOR

Title (de)

NARINGENINAEROSOLINHALATIONSLÖSUNGSPRÄPARAT UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)

PRÉPARATION DE SOLUTION D'INHALATION PAR AÉROSOL DE NARINGÉNINE ET SON PROCÉDÉ DE PRÉPARATION

Publication

EP 3777844 A4 20210616 (EN)

Application

EP 19914205 A 20190828

Priority

- CN 201910541928 A 20190621
- CN 2019102948 W 20190828

Abstract (en)

[origin: EP3777844A1] The present invention discloses a solution formulation for aerosol inhalation of naringenin and preparation method thereof. The formulation is prepared from 1 part by weight of naringenin, 15-30 parts by weight of hydroxypropyl β -cyclodextrin, a buffer-salt solution and an appropriate amount of an excipient. The preparation method includes: preparing a buffer-salt solution of a pH value of 7-8.5 by using the buffer salt, adding the naringenin into the buffer-salt solution, then adding the hydroxypropyl β -cyclodextrin, shaking in a constant-temperature air bath till complete dissolving and coating, adding an appropriate amount of the excipient, filtering, filling and sterilizing. The present invention, by firstly increasing the solubility of the free naringenin in the solvent by adjusting the pH value, and then coating the naringenin with the hydroxypropyl β -cyclodextrin, significantly increases the overall concentration of the naringenin in the solvent. The administration mode of the aerosol inhalation enables the drug to directly reach the effect target, which, as compared with oral administration of naringenin, has a lower administration dosage, a quicker efficacy, and a higher bioavailability, thereby better utilizing the effect of naringenin in the treatment of respiratory diseases.

IPC 8 full level

A61K 9/72 (2006.01); **A61K 9/08** (2006.01); **A61K 31/352** (2006.01); **A61K 47/69** (2017.01); **A61P 11/00** (2006.01); **A61P 11/14** (2006.01)

CPC (source: CN EP US)

A61K 9/0073 (2013.01 - EP); **A61K 9/0078** (2013.01 - CN US); **A61K 9/08** (2013.01 - US); **A61K 9/12** (2013.01 - EP); **A61K 31/352** (2013.01 - CN US); **A61K 31/7048** (2013.01 - EP); **A61K 47/02** (2013.01 - US); **A61K 47/12** (2013.01 - US); **A61K 47/186** (2013.01 - US); **A61K 47/20** (2013.01 - EP); **A61K 47/40** (2013.01 - US); **A61K 47/6951** (2017.07 - CN); **A61P 11/00** (2017.12 - CN EP); **A61P 11/14** (2017.12 - CN)

Citation (search report)

- [IA] CN 107412205 A 20171201 - SHANGHAI YANGPU CENTRAL HOSPITAL
- [A] CN 109512880 A 20190326 - GUANGZHOU XIANGXUE PHARMACEUTICAL CO LTD, et al
- [A] EVRARD B ET AL: "Cyclodextrins as a potential carrier in drug nebulization", JOURNAL OF CONTROLLED RELEASE, ELSEVIER, AMSTERDAM, NL, vol. 96, no. 3, 18 May 2004 (2004-05-18), pages 403 - 410, XP004505674, ISSN: 0168-3659, DOI: 10.1016/J.JCONREL.2004.02.010
- [A] FICARRA R ET AL: "Study of flavonoids/[beta]-cyclodextrins inclusion complexes by NMR, FT-IR, DSC, X-ray investigation", JOURNAL OF PHARMACEUTICAL AND BIOMEDICAL ANALYSIS, vol. 29, no. 6, 1 August 2002 (2002-08-01), AMSTERDAM, NL, pages 1005 - 1014, XP055803032, ISSN: 0731-7085, DOI: 10.1016/S0731-7085(02)00141-3
- See references of WO 2020252912A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

EP 3777844 A1 20210217; **EP 3777844 A4 20210616**; **EP 3777844 B1 20220209**; AU 2019422013 A1 20210114; AU 2019422013 B2 20210930; CN 110327313 A 20191015; US 2023110326 A1 20230413; WO 2020252912 A1 20201224

DOCDB simple family (application)

EP 19914205 A 20190828; AU 2019422013 A 20190828; CN 2019102948 W 20190828; CN 201910541928 A 20190621; US 201916976728 A 20190828